

**AMENDMENTS TO THE SPECIFICATION:**

Page 1, please add the following new paragraphs before paragraph [0001]:

[0000.2] CROSS-REFERENCE TO RELATED APPLICATION

[0000.4] This application is a 35 USC 371 application of PCT/EP 2004/052659  
filed on October 25, 2004.

[0000.6] BACKGROUND OF THE INVENTION

[0000.8] Field of the Invention

Please replace paragraph [0001] with the following amended paragraph:

[0001] The invention relates to an injector for a common rail injection system ~~having the characteristics recited in the preamble to claim 1~~ **of an internal combustion engine.**

Please replace paragraph [0004] with the following amended paragraph:

[0004] From German Patent Disclosure DE 100 20 870 A1 ~~of the present Applicant~~, a common rail injector is already known whose injector housing contains a valve element that is inserted into a stepped bore in the injector housing and is sealed from the injector housing by a soft sealing ring, which serves as a seal between a high-pressure region and a low-pressure region of the injector. The sealing ring is inserted into an annular chamber above an annular shoulder of the stepped bore and is braced against the annular shoulder. To prevent the sealing ring from being pressed or extruded into a narrow annular gap, located below the annular shoulder, between the valve element and the injector housing as a result of the varying fuel pressures of up to 1900 bar that prevail in the high-pressure region of above the sealing ring, a metal support ring is disposed between the sealing ring and the annular shoulder. Since at the aforementioned pressures complete tightness of the sealing ring cannot

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be assured, the support ring, on its underside toward the annular shoulder, is provided with a total of four shallow leak fuel or relief grooves, which furnish a defined lack of tightness between the support ring and the injector housing so as to carry away a leak fuel flow moving past the sealing ring and thus prevent the buildup of a pressure cushion below the sealing ring, which could lead to an unwanted axial displacement of the sealing ring.

Page 2, please replace paragraph [0005] with the following amended paragraph:

[0005] Since in injectors for common rail injection systems currently being mass produced by the assignee of this present Applicant invention, the support ring furthermore rests sealingly with its outer circumferential edge against the adjacent inner wall of the stepped bore, it furthermore has, adjacent to one another in the axial direction on each relief groove, a crescent-shaped indentation recessed out of its outer circumferential edge, which is meant to allow the leak fuel flow to pass between the outer circumferential edge of the support ring and the adjacent inner wall of the stepped bore into the relief grooves. With such an arrangement, however, an unwanted extrusion of the sealing ring material through the recesses and the relief grooves could occur, so that the sealing function of the sealing ring could no longer be assured and consequently failure of the entire injection system could be brought about.

Please replace paragraph [0006] with the following amended paragraph:

[0006] ~~Advantages of the Invention~~

#### **SUMMARY AND ADVANTAGES OF THE INVENTION**

Please replace paragraph [0007] with the following amended paragraph:

[0007] The injector of the invention ~~having the characteristics recited in claim 1~~ offers the advantage over the prior art that the existing short path through the recesses and relief grooves can be lengthened because of the offset of the recesses and relief grooves, and as a result the frictional forces which counteract an extrusion of the sealing ring material through the recesses and relief grooves can be increased considerably. In other words, the existing direct path is blocked, and a detour is created, which in combination with the small flow cross sections in the region of the detour, in other words between a recess and the adjacent relief groove, counteracts extrusion of the sealing ring material. The passage of the leak fuel flow continues to remain assured, and at the same time its flow velocity is advantageously reduced by the offset arrangement in the circumferential direction of the relief grooves and recesses. The injector of the invention furthermore has a support ring of sturdy construction, since the weakening zones formed by the relief grooves and the recesses do not coincide, and excessive motions in the region of the recesses, which are suspected to be one of the causes for extrusion of the sealing ring material, are avoided.

Page 5, please replace paragraph [0013] with the following amended paragraph:

[0013] ~~Drawings~~ **BRIEF DESCRIPTION OF THE DRAWINGS**

Please replace paragraph [0014] with the following amended paragraph:

[0014] The invention will be described in further detail below in terms of an exemplary embodiment **taken** in conjunction with the ~~associated~~ drawings, **in which** ~~[[.]]~~ ~~Shown are:~~

Please replace paragraph [0015] with the following amended paragraph:

[0015] Fig. 1[[,]] is a longitudinal sectional view, partly cut away, through an injector of the invention with a support ring;

Please replace paragraph [0020] with the following amended paragraph:

[0020] ~~Description of the Exemplary Embodiment~~

**DESCRIPTION OF THE PREFERRED EMBODIMENT**

Page 6, please replace paragraph [0022] with the following amended paragraph:

[0022] The complete construction of such an injector has been described at length, for instance in German Patent Disclosures DE 196 19 523 A1 and DE 102 20 457 A1 ~~of the present Applicant~~ and will therefore not be explained further at this point.

Page 7, please replace paragraph [0026] with the following amended paragraph:

[0026] As best seen in Figs. 1, 3 and 5, the one-piece ~~sealing~~ **support** ring [[22]] **24** made of C60 sheet steel has an angled cross-sectional shape, which comprises a short inner support ring part 26, which in a press fit contacts the valve element 8, and an outer support ring part 30, resting with its outer circumferential edge 28 in a press fit against the inner wall of the widened part 12 of the stepped bore 6, the support ring parts being joined by a rounded transition 32.

Please replace paragraph [0027] with the following amended paragraph:

[0027] To prevent a fuel pressure cushion from building up below the sealing ring 22 when fuel moves downward past the sealing ring 22, which can cause the sealing ring 22 to be

displaced upward away from the annular shoulder [[15]] 14 so that it can no longer perform its sealing function, flow conduits are provided in the support ring 24; they permit slight quantities of fuel to flow past into the sealing gap 20.

Page 8, please replace paragraph [0031] with the following amended paragraph:

[0031] As best shown in Fig. 4, between the four recesses 34, each support ring 24 rests sealingly with its outer circumferential edge 28 against the inner wall of the widened part 12 of the stepped bore 6, while between the four relief grooves 36, with an inner, annular-segment-shaped part 42 of its underside shown in shaded lines and bordering on the valve element 8, each support ring rests sealingly on the part of the annular shoulder 14 that is located radially inward from the annular ~~groove~~ space 38.

Page 9, please replace paragraph [0032] with the following amended paragraph:

[0032] As indicated by the arrow A in Fig. 4, the leak fuel flow downward past the sealing ring 22 until it reaches the top side of the support ring 24 passes through the recesses 34 between the support ring 24 and the inner wall of the widened part 12 of the stepped bore 6 and from there flows in the circumferential direction through the shallow annular ~~groove~~ space 38 as far as one of the two adjacent relief grooves 36, through which it then flows radially inward into the gap 20 between the valve element 8 and the injector housing 4, from which place it is carried away. The direct short path to the inside represented by the arrow B is blocked, so that because of the detour, an extrusion of the sealing ring material through the recesses 34 and relief grooves 36 is reliably avoided.

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Please add the following new paragraph after paragraph [0032]:

[0033] The foregoing relates to a preferred exemplary embodiment of the invention, it being understood that other variants and embodiments thereof are possible within the spirit and scope of the invention, the latter being defined by the appended claims.